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Policy

The U. S. Navy Medical News Letter is basically an official Medical Department publication inviting the attention of officers of the Medical Department of the Regular Navy and Naval Reserve to timely up-to-date items of official and professional interest relative to medicine, dentistry, and allied sciences. The amount of information used is only that necessary to inform adequately officers of the Medical Department of the existence and source of such information. The items used are neither intended to be, nor are they, susceptible to use by any officer as a substitute for any item or article in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

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Please forward changes of address for the News Letter to: Commanding Officer, U. S. Naval Medical School, National Naval Medical Center, Bethesda 14, Md., giving full name, rank, corps, and old and new addresses.

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Indications for Blood Transfusions

By LCDR Charles E. Brodine MC USN.* From the Proceedings of Monthly Staff Conferences of the U. S. Naval Hospital, NNMC, Bethesda, Md., 1961 - 1962.

Early attempts at blood transfusions were doomed to failure because of a lack of knowledge of blood types and methods for preventing coagulation and contamination. The clinical application of blood transfusion did not become a practical reality until after the classification of blood agglutinating and agglutinable components by Landsteiner (1901).

Development of suitable methods for conservation and storage of blood led to organization of the first blood bank in the United States at Cook County Hospital in Chicago in 1937. Since that time the utilization of blood transfusions has soared to unprecedented heights. In 1959, 5,000,000 units of blood were transfused in the United States. These numbers are a tribute to progress in simplifying the collection, preservation, and administration of blood; however, the problem of transfusion reactions has grown.

Fortunately, most reactions are mild in character. But it is the definite responsibility of physicians to weigh carefully the possible benefit to be derived from a blood transfusion against the statistical chance of a severe reaction. Indications for blood transfusions are, therefore, based on the knowledge of the possible benefit and the potential hazard from their use.

Potential Hazards of Blood Transfusions

Because there has been no rigorous routine for observing patients during transfusions, and no systematized reporting of reactions throughout the country, it is impossible to obtain valid statistics for the incidence of all the hazards of whole blood transfusions. There are no consistent figures available, but the mortality reports vary from one death in 1000 to one death in every 5000 transfusions. From these figures one can estimate 1000 to 5000 deaths attributable to this procedure yearly. These deaths are due most commonly to hemolytic reactions, circulatory overload, and hepatitis. Varying reactions occur in 3% to 5% of those transfused. Blood transfusion hazards can be classified as early reactions and late untoward effects.

Early Reactions

Pyrogenic reactions characterized by chills and fever are the most common early complication of blood transfusions, occurring in approximately 3% of transfusions. The reaction may occur either during the transfusion, or as long as 24 hours later. Bacterial pyrogens and leuko-agglutinins are the main causes of this reaction. Allergic reactions manifested by hives and occasionally by angioneurotic edema form the second most common type of reaction

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occurring in approximately 2% of blood transfusions. The symptoms usually occur during or immediately after the transfusion and, in most cases, the etiologic agent cannot be determined. Pyrogenic and allergic reactions are ordinarily not dangerous, but may be so in certain circumstances.

The incidence of hemolytic transfusion reactions is less than 0. 1% and the mortality ranges from 40% to 60% in patients experiencing a severe hemolytic crisis. The most frequent cause of hemolytic transfusion reactions is transfusion of blood incompatible in the ABO system. Potentially, of equal seriousness are situations in which recipients possess so-called immune hemoantibodies which are the results of previous immunization by preceding blood transfusion or by pregnancy, with a fetus carrying a blood factor absent in the mother.

Hemolytic transfusion reactions may also be caused by transfusion of blood containing in its plasma isoantibodies capable of destroying the red cells of the recipient. These reactions are generally less severe. The most common cause is the use of group O, "universal donors," for recipients of other groups.

As little as 10 cc of incompatible blood can cause a hemolytic reaction. Thus, it is highly important to observe the recipient carefully for untoward symptoms during the administration of the first 50 to 100 ml. Hemolytic reactions are manifest usually by symptoms of lumbar pain, restlessness, chills and fever, nausea, vomiting, precordial pain, and in severe cases, by shock.

The incidence of bacterial contamination is said to range from 1% to 6% even under the best aseptic conditions. Gram-negative coliform, Pseudomonad, and Aerobacter-like organisms are most dangerous since they have the ability to grow at lower temperatures and form potent exotoxins. Fever, hypotension, and severe muscular pains are the typical clinical symptoms, with irreversible shock and renal failure developing preterminally. Death has followed the administration of as little as 25 ml of contaminated blood.

Death due to circulatory overload probably occurs more frequently than is reported. This type of reaction is manifested by sudden dyspnea, orthopnea, and cyanosis. Excessive overloading of circulation by blood transfusion may lead to marked hypotension and may cause venous bleeding from surgical wounds. Patients with reduced cardiac reserve are particularly susceptible to this complication. These patients should be transfused slowly with packed red cells, preferably not exceeding 250 cc within 2 to 4 hours. The rate of infusion should not exceed 1 ml per pound per hour. A careful watch should be kept for dyspnea, rales, or cough during and following the transfusion.

Late Untoward Effects

Of the late untoward effects, serum hepatitis and isoimmunization are the chief hazards. Transfusional siderosis occurs in patients with chronic anemia, requiring large numbers of transfusions over a long period.

Careful screening of prospective blood donors should eliminate transmission of diseases such as syphilis, bacterial infections and, in most cases, malaria. At present, one hazard cannot be completely controlled, namely,

transmission of homologous serum jaundice. As of this date, no reliable and specific laboratory test is available by means of which one can detect all carriers of the virus. Statistical data on the incidence of post-transfusional hepatitis are dependent on the accuracy of follow-up methods used. Figures on the incidence vary widely, but may be considered to average 0.3% to 0.5%, and the incidence of subclinical hepatitis has not been evaluated. Serum hepatitis carries a high morbidity and mortality. The mortality from post-transfusional hepatitis has been variously estimated to range from 2% to 25%.

The recipient of each transfusion receives compatible blood, not identical blood, and thus receives a number of antigens capable of causing later problems due to isoimmunization. This fact is especially important for women of childbearing age, since it may place in jeopardy the fate of subsequent offspring. If one uses O Rh-negative blood for emergency transfusions, as is usually done, one must keep in mind that about 17% of the United States Caucasoid population is susceptible to sensitization to the c factor which is always present in Rh-negative blood.

It must be kept in mind that sensitization produced by the first transfusion may not be detectable by serologic methods until after a second transfusion exposing the patient to the same blood factor, after which the rise of antibody may be so rapid and so great that the donor blood is entirely destroyed a few days after it is given—occasionally with serious consequence.

Air embolism, transfusional hemorrhagic diathesis, citrate intoxication (with possible convulsions, impaired clotting, or cardiac arrest), hyperpotassemia with cardiac irritability and arrest and ammonia intoxication in patients with impaired liver function are other potential hazards of blood transfusions. A number of potential dangers can be decreased by high standards of blood bank practices and good clinical judgment, but it is impossible to eliminate all hazards.

Indications for Blood Transfusions

A blood transfusion should not be a substitute for careful consideration of the patient and his problem. Indications for a blood transfusion should be based on each patient's individual requirements, not by rule of thumb. Excluding the use in exchange transfusions, and in connection with extra-corporeal circulation, there are two valid indications for blood transfusions:

> To improve stability of the circulatory system when the blood volume is reduced in such a way as to imperil the patient.
>
> To improve the oxygen carrying capacity of the blood to prevent acute hypoxia or invalidism.

Blood Loss

Whole blood transfusion is primarily indicated to replace simultaneous loss of both red blood cells and plasma. Clinically and experimentally mild shock appears in man with a blood loss of 15% to 20% of the circulating blood volume, representing a blood loss of 750 to 1100 cc in a patient weighing 70 kg. If such

a patient is not hypotensive in the horizontal position and, provided bleeding does not continue, the patient can be managed with plasma or plasma expanders to reestablish the circulating blood volume. Moderate shock occurs with blood losses of 20% to 30%, and severe shock from blood loss of 50% or more, and requires prompt transfusion with whole blood.

Whole blood is not as suitable as plasma for treatment of shock not associated with hemorrhage.

Anemias

Whole blood is considered less suitable than the administration of erythrocytes alone for the management of anemias, with normal or increased plasma volumes. It has been estimated that from 25% to 50% of transfusions given in a general hospital are given to correct anemia and could be administered as concentrated red cells. The dose of red cells that can be given is, therefore, increased with less danger of overloading the circulation and the plasma—which is not needed—is saved for other purposes.

Indication for transfusion therapy in anemia depends on the etiology of the condition. For example, a patient with any type of anemia for which specific therapy is available, e.g., iron deficiency anemia or pernicious anemia, will usually not require a blood transfusion unless signs of incipient heart failure are present. In these situations, a small transfusion of packed red cells will tide them over.

In acute hemolytic anemia, with a sudden drop in hemoglobin, a blood transfusion may be indicated, but should be approached with caution because the donor cells may be destroyed as rapidly as the recipient's.

However, if the patient has a chronic hemolytic anemia of long duration and has become adjusted to a low hemoglobin, a blood transfusion offers very little. Repeated transfusions of large volumes of blood will suppress blood formation and eventually give rise to transfusional siderosis. These precautions apply also to other refractory anemias such as aplastic anemia, anemia associated with leukemia, and chronic nephritis. Most patients with chronic anemia will remain active and experience few symptoms until the the hemoglobin falls somewhat below 7 gm %. Sumptoms will depend on the activity of the patient and presence of cardiac or pulmonary disease. So there are many individual considerations other than the hemoglobin level.

Preoperative Transfusions

Indications for preoperative transfusions are poorly defined, but it is generally agreed that any patient undergoing a general anesthetic should have a hemoglobin greater than 10 gm%. This rule of thumb is open to question in light of recent studies reported by Peden et al. They state that the only way to determine the need for transfusing blood or plasma preoperatively into persons who have not lost blood is to measure the total red cell volume and plasma volume with methods that are accurate. They found that cachectic individuals without advanced cancer, renal disease, hepatic disease, or chronic infection have normal to super-normal values relative to the blood volumes of lean normal

persons. Correction of anemia by blood transfusion in the presence of normal or super-normal blood volumes may be hazardous, for pulmonary edema and death might result. The hemoglobin concentration represents 0_2 carrying capacity which is rarely a limiting factor during surgery. Studies indicate that a concentration of 7 gm % of hemoglobin per 100 ml in normovolemic patients is sufficient for tissue oxygenation for most situations during surgery.

Blood Transfusions During Surgery

Blood transfusions administered during the course of surgery are particularly hazardous because the early signs of hemolytic transfusion reactions may be masked. Paradoxically, circulatory overload may lead to venous bleeding from the surgical wound and shock which require immediate reduction rather than increase of the blood volume. Again, the indications for blood transfusions during surgery are poorly defined, but a recent article by Wilson et al reflects the surgeon's concern over this problem. They reported that blood transfusions during major gastric operations are usually not necessary. The inherent risk of giving whole blood during the operation is not justified except when special indication of need for blood can be demonstrated. They state that the greatest absolute and relative loss of fluid volume that attends a subtotal gastric resection is characteristically the loss of extracellular fluids; the loss of red cells is relatively small. Whole blood transfusions were given and considered to be beneficial in only 2 of 100 patients during elective subtotal gastric resection. Twelve patients had a hemoglobin of less than 10 gm % prior to surgery and did not require transfusion during surgery. All patients had supportive volume replacement therapy with infusion of balanced salt solution, and in the volumes used no postoperative complications that are commonly attributed to salt retention were noted. In the same journal, Costello reported two cases of over-transfusion in the operating room, one resulting in a fatality.

Single Unit Transfusions

It is necessary to reevaluate the need for transfusions, especially those in which patients receive only one pint of blood during their hospital stay. The need for a single unit transfusion is open to question, considering that one pint of blood theoretically produces an increase of 1.5 gm per 100 ml in the hemoglobin level, and results in only a minimal increase in oxygen carrying capacity of the blood. In addition, the physiologic changes that occur in the normovolemia anemic patient allow for greater desaturation of the hemoglobin by the tissues to compensate for the fall in hemoglobin.

The records show that blood transfusions have become an amazingly frequent form of therapy in operations which usually do not occasion much blood loss, and of the total transfusions given, the majority are one pint of blood only. This is not to say that one pint of blood is never indicated in the treatment of patients. Obviously, there are occasions when transfusions of a single pint will bring the patient's condition to the point where measures other than blood may suffice. But the dangers of transfusion cannot be denied, and the recuperative power of the human being should not be overlooked.

Because of this concern about increased incidence of small transfusions, several surveys have been made of patients receiving single unit transfusions. In one survey, there was a 43% incidence of single unit transfusion and in another, a 36% incidence was obtained. In the latter series, at least 34% and possibly 72% of the single unit transfusions were considered to be unnecessary.

Medicolegal Aspect

Not only is the danger of transfusion reaction a constant one to the patients, but also it is well to bear in mind the medicolegal importance in that, "Even if no negligence could be proven in the collection, storage, typing, and administration of blood, an action for damages would lie if the plaintiff could prove that the transfusions were not indicated medically." An action would also lie if the blood were administered in a careless and negligent manner, such as could arise from the overloading of an embarrassed circulation by the too rapid administration of blood.

Conclusion

Inescapably, it is the clinician's responsibility to decide whether or not blood is to be given. He must be aware of the technical problems involved, informed about the availability of blood, and well posted concerning the indications, clinical limitations, and multiple hazards relative to blood transfusion. The potential hazards must be weighed against the potential benefit.

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Human Genetics *

The Teaching of Genetics in the Undergraduate Medical Curriculum and in Postgraduate Training: First Report of the Expert Committee on Human Genetics, Geneva. WHO Chronicle 16: 383-384, October '62.

Recent advances in human genetics have been so rapid that many medical men find it difficult to keep pace with them and to appraise their significance. Yet they are of importance to the practicing physician, for they increase understanding of the endogenous factors in disease and provide an insight into the complex interactions between man and his environment. A WHO Expert Committee on Human Genetics met in Geneva, 28 November to 4 December, 1961, to discuss instruction in genetics and recommend how necessary knowledge could best be presented to different kinds of medical personnel and integrated into the medical curriculum. The report of the committee outlines the developments that have led to the rapid expansion of genetics as a medical discipline and shows how knowledge of the structure, function, and mode of

* Wld Hlth Org. techn. Rep. Ser., No. 238 (19 pages). Price: $0.30.

inheritance of the gene has important applications in clinical practice—in predicting the recurrence risks of certain diseases, as an aid in diagnosis and prognosis, or in the management of patients having genetically determined abnormal reactions to drugs.

The report asserts that the teaching of genetics to the medical undergraduate is essential because it is "a basic discipline in biology, an exercise in scientific method, and is fundamental to the understanding of the subjects the undergraduate is studying." Students entering medical school should have a thorough grounding in biology and during their preclinical training should have a course in basic genetics occupying a minimum of 15 to 20 hours. Detailed suggestions are made regarding the content of such a course, and the desirability of including laboratory work and other practical activities is emphasized. This instruction should be followed in the student's clinical years by a study of specific applications of genetics to human diseases, preferably in collaboration with one of more clinical departments.

Postgraduate training in genetics is needed at three levels. In addition to the instruction given as part of the regular training in various medical and surgical specialties, more advanced training should be available for those for whom genetics is a valuable adjunct to their research or practice as well as for candidates who wish to qualify for full-time research and teaching in medical genetics. Content of the courses will depend on how much previous training in genetics the specialist has had. An example is given of a program for training medical geneticists that is already in operation at one university. The report draws attention to the need for more trained teachers in medical genetics if such programs are to be widely adopted and if the inclusion of genetics in the undergraduate curriculum is to become a routine practice. The committee was convinced that physicians who graduate without receiving such instruction would be severely handicapped in their understanding and handling of many pathological conditions.

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Treatment of Clostridial Infections with Hyperbaric Oxygen *

W. H. Brummelkamp MD, Amsterdam, First Assistant; I Boerema MD, Groningen, Professor of Surgery; and L. Hoogendyk MD, Amsterdam, Bacteriologist. The Lancet Vol. 1 for 1963, No. 7275:235-238, 2 Feb 1963.

The anaerobic nature of the causal organism is the basis for the use of oxygen in anaerobic infections. Use of the hyperbaric chamber makes it possible to increase the amount of oxygen—particularly the oxygen in physical solution. The amount of oxygen combined with hemoglobin is already optimal under normal atmospheric conditions. The quantity of oxygen physically dissolved in the plasma and tissue fluids depends upon, and is proportional to, the partial pressure of the oxygen with which the blood comes in contact. Thus, a rise in

alveolar oxygen tension will result in an equal rise of oxygen tension in the tissues.

When a patient breathes pure oxygen in a hyperbaric chamber under a pressure of three atmospheres absolute (3ATA), the alveolar tension, in theory, is increased fifteen times, and so is the amount of oxygen in the tissues. The fact that this great increase in the amount of physically dissolved oxygen is effected in the lungs and transported by the blood stream to all the tissues makes it certain that this increased amount of oxygen is also present at the border of an advancing clostridial phlegmon and even in the phlegmon itself. When this happens, a physical situation incompatible with the anaerobic character of the microorganism is created, the spread of gas gangrene is arrested, and the disease cured.

Hinton, in 1947, described the application of this principle in which infected areas were walled off by injecting oxygen into healthy tissue at the border of the advancing phlegmon. This type of therapy, however, results in a much lower tension in the tissues than that obtained in the hyperbaric chamber, and there is no continuous diffusion of physically dissolved oxygen into the phlegmon. Local injection around the phlegmon may arrest the spread of infection, but hyperbaric oxygen drenching (H. O. D.) cures the infected area itself. This perhaps explains the dramatic improvement found in the authors' patients. Local oxygen injection produces oxygen emphysema and, according to the site, gives rise to difficulty in swallowing and talking (Hinton 1947), and earache or longstanding deafness, to say nothing of oxygen embolism. Intraperitoneal infection, intracranial spread of the anaerobic process (Gilbert 1961), and clostridial sepsis are unsuitable for injection therapy, whereas hyperbaric oxygen drenching fulfills these special requirements. Local application of oxidizing agents in wounds is useless in rapidly spreading gas gangrene.

Treatment of gas gangrene and other anaerobic infections began in Amsterdam in November 1960 (Boerema and Brummelkamp 1960) as an offshoot of work which had been going on since 1956 on high atmospheric pressure in cardiac surgery (Boerema et al 1956, Boerema 1961). The first results with hyperbaric oxygen in experimental gas gangrene (de Almeida and Pacheco in 1941) were not encouraging. After an initial success in guinea pigs (Brummelkamp et al 1961) the writers' results, except in clostridial infection of the liver in rabbits (Klopper et al 1962), were similar to that of de Almeida and Pacheco. Fortunately, the unsuccessful laboratory results were not duplicated in the authors' clinical work since 1960. They treated twenty-six patients with clostridial infection (Clostridium welchii) in the hyperbaric chamber.

Method and Results

The patient is placed in the hyperbaric chamber in which the atmospheric air is compressed within 10 minutes to a pressure of three atmospheres absolute (3ATA). Once at this pressure the patient begins to breathe oxygen through a mask at a flow-rate of 8 to 10 liters per minute. Oxygen inhalation is continued for one and a half hours, after which decompression according to the

routine schedule follows (Figure 1). The total treatment consists of seven sessions in the course of 3 days—namely, three sessions of 2 hours on the first day, two sessions of 2 hours on the second day, and two sessions of 2 hours on the third day. As a rule, no surgery is undertaken before hyperbaric oxygen is administered and antibiotics are not used routinely. The twenty-six case reports are summarized in this article.

Discussion

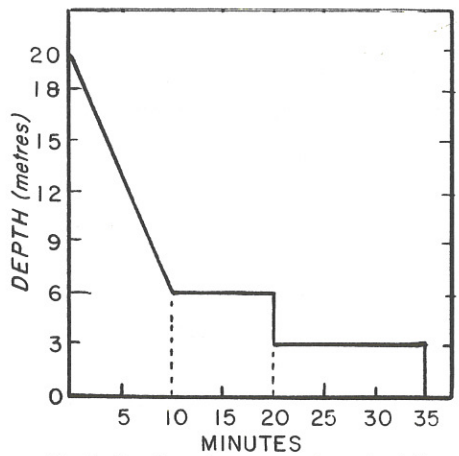

Fig. 1– Routine decompression schedule

Hyperbaric chamber therapy raises several problems:

Eardrums. —The writers consider that myringotomy should be done (a) if the patient is under general anesthesia; (b) if the patient is too ill, too old, or too young to swallow adequately; and (c) if the patient gets intractable earache during compression.

Oxygen Intoxication. —Early symptoms of intoxication such as profuse sweating, dazed expression, and sometimes a convulsive action of an extremity were seen only in very ill and toxic patients with high fever. This danger is over when the temperature drops. Premedication with chloral hydrate 1 gr per rectum half an hour before the oxygen session was found to be an excellent prophylactic. Adequate oxygen flow and prevention of carbon dioxide retention are important. Every patient has a doctor with him during his first session in the hyperbaric chamber, and afterward so long as the patient's temperature is above 38.5 C—or 101.4° F. To obviate the need for the constant presence of a doctor in the hyperbaric chamber, the oxygen mask should be simple—e.g., a B.L.B. mask without valves and with an uncomplicated opening to the outer world. Access to ordinary compressed air permits the oxygen supply to be cut off from outside if there are signs of oxygen intoxication, and the patient can then breathe air through the hole in the mask. Hitherto, this extra safety measure has not been used. Swallowing of oxygen often causes vomiting. This can be prevented by putting on the mask only after full pressure has been established.

In six patients, unsuccessful surgical efforts to treat the infection had already been made, but all patients admitted had active progressive clostridial infection. Operation was performed on five patients only before submitting them to hyperbaric oxygen drenching, and then the operations were limited to local incision. Clearly, oxygen therapy can make no difference to tissue already necrotic and, therefore, corrective surgery may become necessary afterward. The opportunity for deferring operation has certain advantages:

(1) One operates on a nontoxic patient in improved general condition.
(2) The operation can be confined to the removal of necrotic tissue since the phlegmonous component of the inflammation has already been cured. Radical surgery, such as amputation through healthy tissue, is not

necessary. Limbs apparently lost, when treated in this manner, were repeatedly saved.

(3) The time gained by hyperbaric oxygen drenching allowed the necrotic tissue to be demarcated and removed with little trauma. The writers' experience with nonclostridial infections treated in the same way points to acceleration of the process of demarcation in these cases also (unpublished data).

Corrective surgery, apart from simple procedures, such as skin grafting and/or removal of necrotic sloughs, was necessary in six cases. In twelve patients, no operations were undertaken either before or after oxygen treatment. At first, large doses of penicillin were given intravenously in addition to hyperbaric oxygen drenching. Eight cases were treated without antibiotics. Three cases received antibiotics after some time to combat secondary nonclostridial infection. Except in two cases, the antibiotics used were penicillin and/or streptomycin. The belief is expressed that it is probably always better to give antibiotics against secondary or mixed infection.

Small doses of anti-gas-gangrene serum had been already administered elsewhere to a few patients. The authors never used serum therapy, with the exception of one case. In view of the toxic hemolysis often seen in patients with gas gangrene, the writers refrained from giving blood transfusions before treatment in the chamber. As a rule, 1000 ml of dextran ("Macrodex") was given to treat shock and prevent peripheral sludging and thrombosis so frequently encountered in gas gangrene (Koekenberg 1962). After a few hyperbaric sessions when the hemolysis had usually stopped and the gangrenous process had been arrested, the hemoglobin level and the plasma volume could safely be corrected. Noradrenaline was used only twice. Both patients were in deep shock. Restoration of the blood pressure by means of noradrenaline-like compounds is undesirable because of the vasoconstriction produced in the infected area. After the infection with Escherichia coli was missed in one case, the authors made blood cultures on all cases and repeated these whenever doubt arose.

The rapid detoxication seen in the treated patients was astounding. The temperature usually dropped abruptly, and many extremely ill, comatose, or delirious patients regained their appetite and began to eat after two or three treatments. This way of treatment without operation before oxygen drenching proves that clostridial intoxication is not directly related to the presence of necrotic tissue.

In one patient only was death clearly due to gas gangrene, and in one other patient the cause of death was probably directly related to the infection. The first case was an old man who was already dying when the diagnosis was made. There is no adequate explanation for the other death; it is attributed to gas gangrene even though all anaerobic cultures taken postmortem were negative. The cause of death was not directly related to the clostridial infection in three patients—namely, uremia due to aortic thrombosis 2 months after clinical cure (one patient), infection with Escherichia coli one week after cure of the anaerobic infection (one patient), and pulmonary embolism 14 days after cure (one patient).

Summary

Hyperbaric oxygen drenching exerts a rapidly curative effect on Clostridium welchii infections through the greatly increased amount of oxygen in physical solution in the affected tissues. Oxygen therapy results in detoxication within 24 hours. The treatment is life saving, spares extremities, and makes conservative treatment possible in the presence of manifest clostridial necrosis. This is an additional advantage if delayed surgical correction should prove necessary.

This regimen is effective also in cases of intraperitoneal spread, clostridial septicemia, and other conditions, when the conventional treatment is often ineffectual. With due precautions, hyperbaric oxygen treatment is safe for the patient. Twenty-six patients with clostridial infections (type welchii) were treated in the Surgical University Clinic of Amsterdam. In only one of twenty-six patients can the cause of death be directly related to the gas gangrene, and in one other patient the infection may have been responsible for the death.

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Prevention of Initial Attacks of Rheumatic Fever

M.S. Saslaw MD, J.M. Jablon Ph D, and J.A. Mazzarella MD, Dept of HEW, PHS, Public Health Reports 78: 207-221, March 1963.

The fluorescent antibody (FA) technic was investigated as a means of rapidly identifying group A streptococci in throat cultures of a random sample of elementary school children in Dade County, Fla. Correlation between FA and conventional bacteriologic technics was more than 90% in 735 samples tested.

The FA technic identified more group A organisms than the conventional procedure. Also, FA results were available within 24 hours, while the

conventional procedures often required 5 or more days to establish the group specificity. Prompt recognition of group A streptococci by the FA method permitted reporting results of throat cultures to parents and physicians within 24 hours, while the children were still ill.

Adequate treatment was administered to all subjects who were notified early. But when reporting of bacterial findings depended on conventional cultural methods, only 45% of the children with positive cultures received treatment. The project demonstrated that overt illness probably will be treated in children whose throats yield group A organisms if notification is prompt. By early and adequate treatment, the incidence of rheumatic fever episodes should decline significantly.

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Environmental Health in the Americas

From: "Facts on Health Problems," Pan American Health Organization/WHO, July 1961.

Responsibilities of governments in the field of environmental health include provision of pure water supplies, sewage and excreta disposal, industrial waste disposal, control of stream pollution, the hygiene of housing, garbage and refuse disposal, occupational health, radiation protection, food and milk sanitation, prevention of air pollution, and vector control.

Water Supply

If a single program were chosen which would have maximum health benefits, would rapidly stimulate social and economic development, and materially improve the standard of living of people, that program would be water supply with provision for running water into or adjacent to the house. Such a program has the unique characteristic that it can be self-financing, self-sustaining, and can generate its own capital for future expansion. Initially, local or external funds are required to assist municipalities to develop plans, carry out construction, and establish good management for water companies.

In the twenty countries in Latin America, 33 million persons, or 39% of the urban population are without water from a community water supply (1961). The accompanying chart shows variations in percentages of the urban population without water services. Smaller cities and rural populations had even more limited facilities. An estimated 100 million persons in Latin America need water service. Since 1950, the extension of water service has not kept pace with population growth. About 25 million additional persons have been supplied with water since 1950, but the population increase in this period has exceeded 30 million. Unless there are substantial increases in rates of construction, by 1980 some 150 million persons may be without water service.

Of sixteen countries of Latin America with data available regarding mortality of children one to four years of age, diarrheal diseases were the

leading cause of death in eleven countries and among the first five principal causes in the remaining five. Rates in children under 5 years of age are very high in Latin America due to gastrointestinal diseases and communicable diseases of childhood. A significant proportion of these deaths could be prevented by adequate water supplies.

Lack of water results in a high incidence of gastrointestinal diseases, unfavorable living conditions, hampered industrial development, and creation of serious health problems. A study of diarrheal disease in labor camps in Fresno County, Calif., revealed that the infection rate was ten times as great among persons living in cabins without water faucets, as among those living in cabins with water faucets. Thus, the simple provision of water in the house results in a major reduction in gastrointestinal diseases.

Typhoid fever which can be almost completely eliminated through well-proven methods is a debilitating disease which requires a long period of hospitalization and medical care. Typhoid fever cases continue to occur without apparent reduction in South and Middle America. In 1958, over 47,000 cases were reported in the Americas.

Every country is spending substantial sums of money every year on water supply. There will continue to be demands for capital to finance water works because of the physical needs of increasing populations, because of industry, and without more water, muncipalities cannot expand and take on new activity.

PER CENT OF POPULATION WITHOUT WATER SERVICE IN CITIES WITH 2,000 OR MORE INHABITANTS IN COUNTRIES OF THE AMERICAS

The problem has been, and continues to be, that in most countries water is not considered a commodity like food which must be paid for at a sum which covers cost of production and distribution. In most countries, present levels of spending for water will have to be about doubled to permit serving 90% of the urban population by 1980.

In rural areas, it is estimated that more than 70% of all people are without water service in Latin America. A program to provide these people with a basic safe water supply will cost an estimated $10 per capita. Long experience with a sufficient number of well operated and managed water systems in Latin American countries gives assurance that provision of adequate water supplies can be considered a financially sound investment.

Sewage Disposal

Sewage disposal presents a problem paralleling in magnitude that of water service in Latin America. Most cities do not have adequate sewage disposal

systems and in rural areas many houses lack any kind of facility for disposing of excreta. Because the solution of the sewage and waste water problem in communities rests on the economic capacity and considered decision of the community to finance this facility, and because the problem cannot be ignored even where funds do not immediately exist, steps in the recommended approach are to:

1. Prepare master plans for sewage and drainage for all cities.
2. Construct such portions of the master plan as funds will permit and in accordance with priorities which must be determined locally.
3. Establish financing plans for sewer improvements which will allow the same sound approach for this facility as for water supply.
4. Install water systems first and approach sewage and drainage needs as rapidly as funds and public acceptance permit.

Housing, Environmental Pollution, and Municipal Planning

Industrialization brings with it such problems as air pollution, stream and lake pollution, adequate housing, occupational health, and municipal planning. Attention must be directed to each of these fields by governments as industrial or urban development is planned. At present, the activity directed to prevention of water and air pollution problems in most Latin American countries is limited. Little attention has been given generally to the public health aspects of housing and to municipal planning. Industrial health problems are just now beginning to receive attention.

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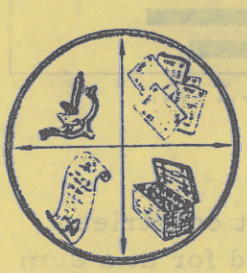

MISCELLANY

IMPORTANT NOTICE

Officer Preference and Personal Information Card

The attention of all officers of the Medical Department is invited to BUPERS Instruction 1301.25B. This reference sets forth detailed instructions regarding submission of the new Officer Preference and Personal Information Card, NAVPERS 2774 (Rev. 5-62).

It appears that many officers neglect to submit these cards because they feel they are not used. It is pointed out that after being processed through the Bureau of Naval Personnel, preference cards are forwarded to the Bureau

of Medicine and Surgery to become part of each officer's record. These cards are constantly utilized in making assignments and their importance cannot be emphasized too strongly. They should be submitted annually or when significant changes occur. The items that receive particular attention in this Bureau are duty preferences, dependency status, ages of dependents, current residence, and any comments contained in Item 24 (Remarks). Careful attention should be given to the completion of Section 20 (Next Duty Preferences). The block beneath sea, overseas, and shore should be filled in to indicate which type of duty is first, second, or third choice. Nurse Corps officers are requested to completely fill out Item 16 (Dependent Members of Household) when applicable, and to note in Item 24 (Remarks) whether or not dependents are living and moving with them.

Officers who consistently indicate preference for a specific geographic area, with little or no consideration given to the type activity and/or primary billet, may penalize themselves professionally. The officer who is enamored with one Coast, or who prefers "any billet" so long as he gets a particular area, should be aware that his assignment may be inconsistent with the enhancement of his professional qualifications and illogical in consequence of his prior training and experience. In proposing officers for changes of duty, needs of the service are balanced carefully against career requirements and personal preferences. The officer who shows willingness to subordinate professional qualification to an area choice takes an extremely shortsighted view of his career.

This Bureau commends and wishes to assist officers who aspire to attainment of further education. To this end, whenever preferences are based on the desire for assignment near a civilian university in order to earn credits in part-time educational programs, every consideration consistent with service needs will be given.

Although Officer Preference and Personal Information Cards should normally be submitted annually on 1 July, a submission is welcome at any time an officer desires to indicate a change in his duty preference(s) or when some other factor arises which he desires to report for consideration.

It is recommended that all Medical Department officers review their service records to determine whether they contain a copy of the current preference card as required by BUPERS Manual Art. B-2207(4)(b). If not, officers should submit a current card immediately.

—Medical Corps Branch, Professional Division, BuMed

NOTICE: Navy Luncheon at American Psychiatric Association Meeting. All U. S. Navy and Naval Reserve or former Naval Reserve psychiatrists planning to attend the annual meeting of the American Psychiatric Association at the Chase Park Plaza Hotel, St. Louis, Mo., 6 - 10 May 1963, are invited to attend the annual Navy Luncheon to be held on Wednesday, 8 May, at 12 noon in the Tiara Room of the hotel. Arrangements are being made through the Neuropsychiatric Branch of the Professional Division, Bureau of Medicine and Surgery, and further information can be obtained from that office. It would be appreciated if anyone who plans to attend the Navy Luncheon would so advise the Neuropsychiatric Branch in order to permit realistic planning.

Report on MEND Orientation Tour

By CAPT Bennett F. Avery MC USN, National Coordinator, Medical Education for National Defense.

Thirty-three faculty members—including five deans—of medical schools affiliated with the Medical Education for National Defense (MEND) Program toured U. S. Navy installations and ships in San Diego on 18 and 19 March 1963. They visited the Naval Air Stations at North Island and Miramar, the Marine Corps Recruit Depot, aircraft carrier USS ORISKANY, and Submarine Flotilla One. The group was addressed by Rear Admiral Harold J. Cokely, District Medical Officer and Commanding Officer of U. S. Naval Hospital, San Diego, on opportunities in the Navy for advanced medical training and specialization.

The visits were part of the annual MEND Orientation Tour, and are designed to familiarize these medical educators with the range of naval operations and the medical problems connected with them.

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Navy Under Secretary Interested in Physical Fitness Program

Memphis, Tenn. Mr. Paul B. Fay Jr, the Navy's Under Secretary, saw one of his personal ideas take form on 26 March this year when he visited NAS Memphis to witness play-offs in the station's "5-10 Basketball Tournament."

The Under Secretary visited Millington, Tenn., in December 1961 and at that time suggested to Rear Admiral J. C. Clifton a method of encouraging men to play the very active game of basketball. Since it is popularly thought that the game is confined to tall men, Mr. Fay believed that modifying the rules and setting up a special category of play would encourage greater participation. "5-10" basketball is limited to men 70 inches or shorter, and there are four 8-minute periods to a game.

Men at Memphis have been playing "5-10" basketball (as well as varsity basketball where there is no limit on height) for the past 14 months. Mr. Fay, who is greatly interested in the Navy's physical fitness program, is hopeful that the "5-10" basketball program may be extended to the rest of the Navy and Marine Corps.—NAVNEWS, 31 March 1963

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Medical Service Corps Training Notice

The attention of all Medical Service Corps officers is invited to the provisions of BUMED INSTRUCTION 1520. 12B which outlines the MSC full-time training program. The next Sanitary Science course convenes at the University of California, Berkeley, Calif., in January 1964. To be considered for this class, requests must reach BuMed prior to 1 July 1963.

NAVY COMMENDATION MEDAL TO DOCTOR LYNCH

The Honorable Fred Korth, Secretary of the Navy, presented the NAVY COMMENDATION MEDAL to Lieutenant William F. Lynch Jr., Medical Corps, United States Navy, on 15 February 1963, for service as set forth in the following

CITATION

For meritorious service during the period 15 April to 1 August 1962, while serving with Marine Medium Helicopter Squadron 362 at Soc Trang, Ba Xuyen, Republic of Vietnam. As Squadron Flight Surgeon, Lieutenant Lynch accompanied each assault mission the squadron was called upon to perform, and participated in day and night emergency evacuations into hostile areas, oftentimes initiating lifesaving measures. In addition, he supervised and maintained an excellent field medical and sanitation program which greatly enhanced the health, welfare, and morale of his unit. Lieutenant Lynch's professional skill, leadership, and devotion to duty in the face of adverse conditions were in keeping with the highest traditions of the United States Naval Service.

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BUMED NOTICE 6224 15 March 1963

Subj: Reporting of established cases of tuberculosis

Ref: (a) BUMEDINST 6224.1B
(b) BUMEDINST 6310.4, encl (1)

1. Purpose. To remind naval and station hospitals of the requirements for reporting established cases of tuberculosis (initial diagnosis only) by special epidemiological reports.

2. Background

a. It has been noted on several occasions that hospitals have failed to submit Special Epidemiological Reports (MED 6200-2) on cases of active tuberculosis on whom the diagnosis was established during the hospital admission. In every instance, the patient had been admitted to the hospital with other diagnoses, such as "Diagnosis Unknown (Tuberculosis) #7955".

b. Special Epidemiological Reports are needed by this Bureau for proper coordination of contact studies. Early submission of such reports insures early institution of contact studies and increases the probability of preventing secondary cases.

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FROM THE NOTE BOOK

Seven Hospital Corpsmen Honored at USNH Philadelphia

CAPT J. A. Syslo MC USN, Commanding Officer of the U. S. Naval Hospital, Philadelphia, has awarded letters of commendation to seven members of his Hospital Corps Staff for timely life-saving actions. The presentations were made by CDR E. L. Clauss MSC USN during personnel inspection on 15 March 1963 at the hospital. The citations follow:

To Anthony J. Sisti HN USN:

"On the evening of 25 February 1963, on Ward 1-D, the cardiac ward, Sisti was checking the vital signs when he noticed that his patient leaned back and stopped breathing. Since there was absence of the pulse beat, Sisti immediately obtained help in getting the patient onto a hard surface—in this case, the deck. Without hesitation he started to apply external closed chest cardiac massage and, at the same time, provided an open airway by inserting the throat airway found in the emergency tray. The patient responded to these procedures before the doctor arrived. In handling this emergency, Sisti undoubtedly saved a life by his quick and logical thinking and his courageous and effective action."

To Walter E. Frye HM2 USN, George A. Frantz HM3 USN, Thomas G. Ward HM3 USN, Gerald F. Molloy HN USN, Belinda F. Bedford HN/W USN, and Richard R. Bedford HN USN for joint action as follows:

"A Veterans Administration beneficiary patient, upon arrival at the emergency room of the hospital at 2200, 27 February 1963, went into a state of severe respiratory distress and convulsions. His pulse, heartbeat, and blood pressure were undetectable, and the patient appeared to have expired. By their immediate response to this situation, all these staff corpsmen of the hospital exemplified their excellent training and state of readiness, especially since all except Richard Bedford were in an off-duty status and were merely passing by the emergency room at the time. Bedford, the corpsman on duty in the emergency room, welcomed their skillful assistance as they administered oxygen, closed chest cardiac massage, and artificial respiration prior to the arrival of medical officers who had been summoned. It was a superb team performance of highly trained and competent hospital corpsmen working together as a unit, each complementing the efforts of the other. Their prompt and skillful attention to the needs of this patient, as well as the diligent assistance rendered to the medical officers upon their arrival, saved the life of this patient."

—PIO, USNH, Philadelphia, Penna.

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Announcement. All Naval Flight Surgeons and associated scientists, (past, present, Regular, Reserve, or Retired) attending the 34th Annual Aerospace Medical Association meeting in Los Angeles, 29 April - 2 May, are invited and urged to attend a Social Hour at the Statler-Hilton Hotel on Sunday, 28 Apr 1963, at 7:00 p.m. in the St. Louis Room.

Popular Course Presented Again at U.S. Naval Medical School

The Thirty-Second presentation of the Military Medical Training Program took place at the U.S. Naval Medical School, Bethesda, Md., 17 - 29 March 1963, with over 190 persons in attendance. Thirty-five States were represented with the largest number from California. All the uniformed services were represented as well as all Corps of the Medical Departments. Since its inception in 1948, more than 4000 medical, dental, MSC, and Nurse Corps officers have attended this course which is designed to provide pertinent current information to Reserve officers of the Medical Departments of the Armed Forces.

The sessions opened with greetings from the Surgeons General: Surgeon General Luther L. Terry of the U.S. Public Health Service; Deputy Surgeon General A.S. Chrisman of the Navy; Doctor J.H. Kidder representing the Surgeon General of the Army; Brigadier General R.T. Jenkins representing the Surgeon General of the Air Force. The opening address was delivered by Vice Admiral Felix L. Johnson USN (Ret) who spoke on the "Work of the Naval Reserve Evaluation Board," a subject of great interest to Reserve officers.

The Program proper covered many topics including Research; Nuclear Weapons Effects and Mass Casualties; Aviation, Space, and Submarine Medicine; Rocket Physics and Hazards; Biological and Chemical Warfare Defense; Heat Stress; Trauma; National Health Mobilization; and many others.

A concurrent program for dentists in the Pathology of the Oral Regions was presented during the latter half of the program at the Armed Forces Institute of Pathology; similarly, a concurrent separate program for Nurse Corps officers was provided. The next course will be presented 8 - 21 March 1964.

NOTICE - Pharmaceutical Association. The Annual Meeting of the American Pharmaceutical Association will be held at the Americana Hotel, Miami Beach, 12 - 17 May. The Military Section of the Association will sponsor two meetings at which the following presentations will be made: On 13 May, 1200, "Application of Data Processing to Hospital Pharmacy" by LCDR Theodore W. Tober MSC USN; On 15 May, 1200, "Investigational Drugs - A New Frontier for Hospital Pharmacy" by CDR S.C. Pflag MSC USN, and at 1330, "Some Administrative Techniques in Pharmacy Service Management" by CAPT D.J. Silvernale MSC USA.

CAPT Claude V. Timberlake MSC USN, Chairman Elect of the Military Section of the Association, will preside at these sessions. Retirement point credit will be granted to Reserve Pharmacy officers attending the above meetings and who register with the military representative assigned.

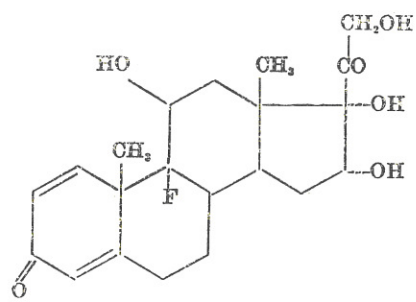
DENTAL SECTION

The Pharmacotherapy of Pulpitis

Andre Schroeder, Prof. Dr. med. dent., F.I.C.D., Head of Department of Operative Dentistry, and Hugo Triadan, Dr. med. dent., First Assistant, Department of Operative Dentistry, Dental Institute, University of Bern, Bern, Switzerland. Oral Surg 15: 345-350, Jan.-June 1962.

In the last few years the treatment of pulpitis has undergone a fundamental change in that an increasing effort is now being made to relieve the inflammation through medication instead of having recourse in each and every case to surgical measures, or extirpation.

Besides the attempts to treat pulpitis by iontophoretic pharmacotherapy, the most diverse therapeutic agents—particularly local anesthetics and antibiotics have been used. The effect of hydrocortisone upon the damaged and infected dental pulps of rat molars has been described by Kiryati. According to him, the administration of hydrocortisone does not promise any sensational results, even if an antibiotic is given concurrently. Our own experiences with human patients fully confirm these observations. We were unable to relieve pulpitic toothache by applying a 2% hydrocortisone ointment. A more unequivocal effect was obtained when we began to make use of highly potent synthetic corticoids of the triamcinolone type in place of hydrocortisone:



Triamcinolone, 16α-hydroxy-9α-fluorprednisolone

Since, as is apparent from the literature, neither the exclusive infiltration of a local anesthetic nor the exclusive application of an antibiotic leads to satisfactory results, we assumed that a therapy based on corticoid alone would hardly be enough. We therefore combined corticoid, antibiotic, and local anesthetic in the following manner:

Triamcinolone	0.315 Gm.
Chloramphenicol	0.28 Gm.
Xylocaine solution, 4%	4 drops
Ointment base	1.5 Gm.

Method

As a general rule, each patient who consulted us in connection with severe pulpitic toothache was treated with the corticoid-antibiotic-anesthetic ointment as soon as the vitality of the tooth was established. In this way, we tried to obviate devitalization in coronal and total pulpitis with accompanying periodontitis. At the first treatment session the cavity was opened wide, all the carious dentine was removed (even at the risk of exposing the pulp), and a sterile cotton pellet carrying the ointment was placed on the lowest part of the cavity or directly on the pulp wound. At a second session seven days later, the temporary filling was taken out and the cavity was closed after final preparation with a combination of zinc oxide and oil of cloves to which about a third part by weight of triamcinolone substance was added. After another week, it was possible to remove the provisional filling up to a layer 1/2 to 1 mm. thick, according to the case, and to place the final filling (amalgam, silicate, or gold).

Results

Altogether, 200 patients (96 women and 104 men), were given this treatment. The average age was 28-1/2 years, with a range from 15 to 54 years. Eighty-two patients were under 25 years of age, and 118 patients were 25 and over. A total of 214 teeth were treated (90 molars, 109 premolars, 6 cuspids, and 9 incisors).

With the first application of the ointment, the pains disappeared generally after about 2 to 3 hours.* All teeth were then finally attended to and showed normal vitality. The following details may be of interest.

Four teeth had been capped with calcium hydroxide by students. These developed (after 7 days, a few weeks, and 6 months) pulpitic symptoms which we were able to relieve without difficulty by means of the previously described medication. Two patients who received provisional fillings of zinc oxide and oil of cloves complained of severe pains. On removal of the temporary filling, a hidden pulp wound was discovered in each case. Following the application of our preparation, one woman's symptoms of inflammation and earache (otalgia e dente carioso) cleared up. It is also interesting that we were able to test the described method in a 20-year-old man who, two days after an

*Similar observations have been made by Fry, Watkins, and Phatak (Oral Surg, Oral Med & Oral Path 13: 594-597, 1960), who used a combination of Meticortelone powder, a brand of prednisolone soluble, with camphorated parachlorphenol and metacresyl acetate.

accident, came to us for treatment, that is, extirpation of the pulp and filling of the tooth root. As a result of a traumatic coronal oblique fracture of the right upper central incisor, the pulp of the crown lay completely exposed. Its surface had a bluish, livid hue and was slightly ulcerated but showed perfect vitality and sensibility to touch. We applied the triamcinolone-chloramphenicol-Xylocaine combination, whereupon the pains receded. After one week the living pulpal tissue had become demarcated and looked healthy and pink. We covered the wound with the combination of zinc oxide, oil of cloves, and triamcinolone and placed a provisional crown of plastic. A jacket crown was to be made later.

Conclusions

Our experiences with the combination of corticoid, antibiotic, and anesthetic suggest that the pharmacotherapy of pulpitis will in all probability gain ground in the near future, and progress along these lines would open new horizons for nonmutilating dentistry.

Summary

We have discussed the possibility of applying pharmacotherapy in pulpitis by means of a combination of highly potent corticoids, antibiotics, and local anesthetics. This preparation was used in severe to very severe cases, some of which presented exposure of the pulp, accompanying periodontitis, and neuralgiform pains. In the Policlinical Section of the Department of Operative Dentistry, which devotes itself above all to the relief of pain, no more devitalizations were performed as a result of these findings. With the procedure described, the prospects of lasting success are good.

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Personnel and Professional Notes

Dental Technicians 15th Anniversary. Dental Technicians having items of interest on the 15th Anniversary celebrations of the U. S. Navy Dental Technician Rating are encouraged to mail them to BuMed, Code 611.

U. S. Navy Dental Corps Continuing Training Program. "Preventive Dentistry," the next course to be offered under the short postgraduate program of the U. S. Naval Dental Corps at the Naval Dental School, NNMC, Bethesda, Md., will be held 6-10 May 1963. This course covers the various aspects of the prevention and early control of dental disease, and focuses attention on the methods of preventing dental caries. Capt G. H. Rovelstad DC USN will be the instructor. Quotas have been assigned to ComOne, ComThree, ComFour, ComFive, ComSix, ComNine, PRNC, SRNC, and CNATRA.

This short course is open to active duty career dental officers of the Armed Forces in accordance with quotas established by the Bureau of Medicine

and Surgery. Applications should be received in the Bureau as early as possible and preferably, not less than 4 weeks prior to commencement of the course. The Bureau Professional Advisory Board will make recommendations on all requests, and upon approval by the Surgeon General, applicants will be notified as to the final action. Those approved will be nominated for TAD or authorization orders, as appropriate. Accounting data will be forwarded to individual officers nominated for TAD orders. Staff Dental Officers not utilizing assigned quotas shall report this information to BUMED, Code 6111, one month prior to the convening date of the course. This will allow the Bureau to fill the quota from other districts.

U. S. Naval Dental Corps Participates in Chicago Television Program. Early in February Rear Admiral C. W. Schantz, DC, USN, Assistant Chief of the Bureau of Medicine and Surgery (Dentistry), and Chief, Dental Division, appeared on television at the Midwinter Meeting of the Chicago Dental Society. He discussed the growth and increased acceptance of television as a teaching medium in dental schools and the recent addition of video tape recording for use at the U. S. Naval Dental School, NNMC. He pointed out the many advantages of video tape for increasing the flexibility of television for dental education.

Admiral Schantz also introduced staff members of the Dental School who presented the following video tape recordings especially prepared for the Midwinter Meeting.

A Modern Approach to Operative Dentistry - Capt T. R. Hunley, DC, USN and Capt L. M. Armstrong, DC, USN
Pedodontics - Capt G. H. Rovelstad, DC, USN
Mouth Preparation for Removable Partial Dentures - Cdr F. J. Kratochvil, DC, USN
Fabricating Mouth Protectors - LCol J. Turner, Royal Canadian Dental Corps
Pontic Design - Capt J. E. Flocken, DC, USN
Preventive Dentistry - Capt G. H. Rovelstad, DC, USN

The unique, 4-day, closed circuit television coverage of the Midwinter Meeting was transmitted to all rooms of the city's major hotels, plus large screen viewing in the lounge of the convention hotel. This provided all 17,000 registrants a close look at the convention activities.

The Naval Dental Corps' portion of the program was co-produced by Capt S. E. Tande, DC, USN, Head, Audiovisual Department, U. S. Naval Dental School and Mr. F. D. Butcher, Head, Television Section, U. S. Naval Medical School, NNMC.

Naval Dental Activities Observe Children's Dental Health Week. Many U. S. Naval Dental Activities throughout the world contributed to the observance of the Fifteenth Annual National Children's Dental Health Week. These contributions were in the form of lectures before school groups, visits of Mobile Dental Units to schools and conducted tours of dental facilities.

National Children's Dental Health Week is recognized as a major factor in the dental education of children which could result in the prevention of dental disease.

Dental Intern Training Program for Fiscal Year 1963. Applications from dental students requesting appointment to the Navy's Dental Intern Training Program have been considered in the Dental Division of this Bureau. The candidates listed below have been selected as principals in this program:

Berg, Donald R.	Northwestern University
Cooper, Charles A.	University of Alabama
Duprey, Roland P.	Tufts University
Finagin, William B.	University of Maryland
Fitzpatrick, Wayne J.	University of Illinois
Fullhart, Teddy L.	University of Indiana
Harrison, William S.	Medical College of Virginia
Heibel, John L., Jr.	University of Pittsburgh
Holdsworth, Earl T., Jr.	University of Pennsylvania
Housley, William G., III	University of Iowa
Knehans, William E.	University of Louisville
Mathers, James M.	Temple University
Mc Williams, Robert B.	Ohio State University
Merryfield, Donald R.	Georgetown University
Neilans, Lionel C.	State University of New York, Buffalo
Porter, John W.	University of Oregon
Schaberg, Siegfried J.	Marquette University
Triplett, Robert G.	Loyola University

The following listed candidates were selected as alternates:

Davis, Neal P.	University of Nebraska
Cordoba, David E.	Creighton University
Elmes, Harry B.	University of Pittsburgh
Mowery, Albert S., Jr.	University of Pennsylvania
Harris, Larry G.	Western Reserve Cleveland
Benjamin, William, Jr.	Howard University

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If science is to have the kind of support that is essential to its vigorous development, improved ways must be found to increase public understanding of what science and technology can do, and of the importance of basic research for its own sake and as the indispensable foundation for an advancing technology. —Science for the Citizen. Graham DuShane. Science 133: 1325, April 28, 1961. J Oral Surg 21(1): 35, January 1963.

AVIATION MEDICINE DIVISION

"What? Me Jump?"

By Lt. D. B. Davis II, MC, USN. Submitted by Service Information Office, Navy #520, FPO, San Francisco, California.

"What? Me jump?" This was my reaction while watching a film of a pilot bailing out of an airplane during my training as a flight surgeon. I had no idea that within two years parachuting would become a routine task for me.

Upon graduation from the School of Aviation Medicine at Pensacola in March of 1961, I was assigned duty as one of two medical officers at the U. S. Naval Air Station, Cubi Point, Subic Bay, Philippines.

Routine rescue work in the Philippines is, at best, hazardous. Air crashes have occurred in dense, mountainous, jungle terrain. A hike of several miles to a crash site is an all day affair. Much time is spent in getting to and from the sites as there may be no clear area for a helicopter to land. In many instances tree height precludes the use of the sling letdown.

My first contact with any form of parachuting came in mid-1961 when we learned that 20 members of the Philippine Air Force were being trained as paramedics at nearby Clark Air Base. During this time, PRCA Eugene H. Woods was consulting with our Assistant Medical Officer, Dr. Raymond D. LaChance, about the formation and training of a rescue team which would be available for immediate assistance in aircraft accidents. Chief Woods casually mentioned that he would like to receive the same training as the Filipino paramedics.

No more thought was given to this idea until several months later when we were called upon to fly to Palawan (an island several flying hours south of Luzon) where a Philippine Air Force plane had crashed with 7 men aboard. We were in an HU-16C and, although we had to turn back an hour out of Palawan because of an oil leak, the sea was too rough to attempt a water landing and our flight would have been in vain. It was another full day before the crash site was reached by a surface ship. Six out of the 7 men perished.

Following this incident, I began to realize the value of a U. S. Navy paramedic team in the Philippines. The previous year Air Force paramedics had been used in the crash involving RAdm Spring. I talked with Dr. LaChance and Chief Woods who both showed great enthusiasm about increasing the Air Station's air rescue capabilities to include paramedics.

The next several months were spent discussing with our command the various needs and plans for the team. We were fortunate in being able to set

up an initial training program with the Air Force at Clark Air Base under SSgt B. E. Davis, USAF. And, so it was, in March of 1962, HM1 T. D. Carpenter and I embarked to Clark Air Base for 2 weeks of intensive voluntary training at our own expense.

Our 2 weeks at Clark were spent with the day's work starting with the early birds at 0400H. Since we had received special permission for the training, it was extremely individualized. After 2 weeks, hundreds of Parachute Landing Falls, parachute packing, road running, and other instruction, we finally made our sixth jump. We were a happy two-some as we began to relate "jumping experiences" to each other.

The following 2 months were spent putting the wheels in motion by asking the Chief of Naval Operations for approval of a voluntary or official paramedic unit. We also wrote letters to BuPers asking for U. S. Navy Parachutist designation. During this period we succeeded in having Dr. LaChance, Chief Woods, HM3 Robert B. Lamb, and PR2 P. R. Duncan trained at Clark, qualify with six jumps, again at no cost to the Navy. We were fortunate in having 2 USAF pararescue men from Okinawa giving us a week of additional training.

Two major problems became apparent: One, we had no equipment, and two, not being designated Naval Parachutists, nor having orders to jump, we could not jump militarily. The first problem was solved mainly by a most effective method for supply, cumshaw. We ended up with twelve T-10 chutes and reserves, jump helmets, medical jump bags for the medical personnel, and general purpose survival bags for the non-medical personnel. We felt we were slowly becoming a well organized unit, under the circumstances.

The second problem was more difficult. We all agreed that we wanted to continue pararescue work with or without hazardous duty pay. Only the enlisted men could draw this because Dr. LaChance and I were on flight pay as Flight Surgeons. We signed waivers and joined the area's sky diving club where we continued our jumping.

The next six months were ones of suspense for us. We slowly gathered favorable endorsements on our letter to the Chief of Naval Operations. (There were, all told, five endorsements to be made on the letter before it could reach the CNO.) We stepped up our training in survival, parachute packing, first aid, para-drops, and general rescue work. We became a small, close-knit group, working efficiently and effectively together.

Our first chance to work as a team came in August, 1962 when a seaplane from a nearby Naval Station crashed into a mountain about 60 miles from Cubi Point. This was during the peak of the rainy season with 145 inches of rainfall in five months. Weather was bad! It was two days before the wreckage was spotted. We were fortunate at that time, to have Marine Helicopter Squadron HMM 261 temporarily based at Cubi Point. We were dispatched to the scene of the accident immediately, and, although we were able to land within 50 yards of the wreckage, we were ready for any type of penetration. Three of our team were let out at the site. Miraculously, one crew member remained alive! We gave him first aid, made him a litter, and placed him

aboard the helicopter with a corpsman to accompany him back to Cubi. The two of us remaining, along with Lt Victor Hanson MC USN (HMM 261's Flight Surgeon), did what we could at the site. The weather soon closed in on us for the next 4 hours, so we set up a camp, having available our supplies which are always on an "alert status." We continued efforts to identify the remaining personnel. Because of our group training, and the organization of our equipment, we functioned much more effectively as a team than in any previous air crashes we had investigated.

Finally, in October, 1962, we received the word we had been waiting to hear. The Chief of Naval Operations officially recognized us and we would become an official mission and task of the Naval Air Station. We were also all designated Naval Parachutists, at long last.

With this wonderful word of encouragement, and a letter of commendation for each of us, we increased our training to a peak tempo. We began adding jungle jumps to our training, jumping at increasingly shorter intervals. All of our spare time was spent repacking chutes. We jumped every type of aircraft we could find, and believe we are the first to jump with static lines from the UH-43C (Dr. LaChance and Chief Woods were the first two.) We adopted the Air Force Rescue Manual and wrote one of our own for jungle type work peculiar to the area. We continually revised and added equipment as we learned more about the "trade." We made night jumps, jungle jumps, high-wind jumps, equipment jumps (which are all routine), and we have begun to check out everyone as a jumpmaster. At the present time 3 of us have over 50 jumps each. Our training is continuous and never yielding. We know that the life of many a pilot and crewmember may depend upon our abilities.

The basic organization of our team calls for 6 members: 2 doctors, 2 corpsmen, and 2 parachute riggers. The group is subdivided into small teams as fits the need of the occasion. The role of the medical officer and corpsmen is self-explanatory. The parachute riggers' primary job is survival training and care of the equipment. However, all members of the team are taught jungle survival. Each team member has a jump bag for which he alone is responsible. The 2 medical officers have essentially identical jump bags weighing 20 pounds each, and containing varied medical supplies including a small surgical kit, Dextran (for intravenous use), anti-malarials, burn treatments, etc. Each member of the team carries a minimum amount of personal survival gear which includes a machete, insect repellent, mirror, flares, knife, food concentrates, etc.

The hospital corpsman carries a medical bag similar to the medical officers, but differing slightly in its contents. Each parachute rigger jumps with a general purpose survival bag weighing 45 to 50 pounds, depending on the equipment. He carries primarily survival supplies: tent, C-rations, machetes, signal paulin, etc. This bag is dropped on a 25 foot line below the rigger after his chute opens. Jungle jump suits are available, but they have not been used in practice tree jumps because of the excessive heat. In tree jumps, each man carries a 120 foot rope to lower himself to the ground. This, plus approximately 35 feet of reserve chute line, allows a man to hang over

150 feet from the ground and still lower himself to safety. This tree let-down technique is also being developed for use with the helicopter sling to give additional line in using the helicopter.

In addition to the above equipment, there is also a combined aircraft accident investigation/medical kit, and a larger medical survival drop container (about 50 pounds) ready for immediate use. These contain a greater number and larger variety of supplies. With these supplies, we are able to do minor life-saving surgical procedures should it be necessary. The latter kit is delivered by cargo chute. We also have on hand other ready containers to paradrop re-supply medical and survival items at a moment's notice. All of our equipment is prepared and ready for paradrops in the event it is not necessary for the team to parachute into the area. Each kit contains instructions on self-medical aid, survival, and signaling.

Now that we have received approval from the Chief of Naval Operations, we are beginning to acquire more and better equipment. We are replacing our T-10 chutes with newer steerable ones. And, as of this writing, a medical officer, Dr. LaChance's replacement, is being trained as a Paramedic Team member by the other members of the team. In the future, all replacements will be trained as parachutists prior to being sent to Cubi Point. However, being a parachutist does not make one a paramedic. The training is relentless and difficult but extremely satisfying, and must be pursued whole-heartedly.

In addition to our training program, we are endeavoring to seek and develop new and better methods in rescue work, both paramedic and general. We are not satisfied with all the widely accepted techniques, because many of them do not work well in the terrain and climatic conditions we have to deal with in this area.

Paramedic rescue work is a new and little publicized field in the Navy. VX-6 has the only other Navy Pararescue unit to our knowledge. The majority of our training and information had come from the Air Force and their manuals. We feel, however, that in many areas such as the Philippines, there is a definite need for better trained Navy Rescue Teams, trained not only in paramedic work, but in all other aspects of the rescue and recovery field. There are now 5 of us on the team: Dr. LaChance, Chief Woods, HM1 Carpenter, and PR2 Duncan, Dr. R. L. Thompson, and myself. Dr. LaChance's relief is in training, and will be a member of the team shortly. We feel that both the formal and the informal training we have received in this field has been invaluable to us. Soon, Dr. LaChance, Carpenter, and myself will be transferred, to be replaced by new personnel trained in the States. It will be a while before they can call themselves "Paramedics," but when they can, they will share the same feeling as we do. We will share even more, realizing that all of our work will not have been in vain and will be continued after we leave.

It has not been an easy road becoming a paramedic. There were many legal hassels to overcome; convincing of many people that there was a need for this type work was our toughest job. We did much of our training on voluntary non-pay basis, training before and after work, and on weekends. But, the results are already beginning to show through. One life saved, plus much personal

satisfaction. Our group has made over 300 assorted jumps, most of them with full equipment, and the majority in the presence of moderate winds (8 to 15 knots). As of now, we have yet to record a single injury. We do have bruises to show for our efforts, but these are small payments for the satisfaction we get in the performance of our work.

We have gelled ourselves into a group, reasonably skilled in our work, and dedicated to our jobs and to our motto: "Your Life Is Our Concern."

* * * * * *

Are Your Crash Ambulances Really Ready?

By LCdr Laurence H. Blackburn, Jr., MC, USN*

It is mandatory that all U. S. Naval facilities be prepared to give adequate first aid and definitive medical treatment to sudden unexpected mass casualties from any cause. Most Naval Air Stations and Marine Corps Air Stations, in particular, must be prepared not only for single seat or dual seat aircraft accidents, but equally importantly for transport type aircraft crashes with multiple casualties. But more often than not, the crash ambulance which responds to the scene of any such aircraft accident has no more than a small physician's satchel with an extremely limited amount of first aid supplies and only one or two litters. If multiple casualties should occur, much valuable time can be wasted awaiting further first aid supplies, resulting in unnecessary patient suffering and possible increased mortality.

Many methods can be suggested for improving a medical department's initial responsibility. Many air stations have locally derived adaptations which could be of much benefit to other Medical Departments. For this purpose the following description of one such local adaptation is offered.

At the Naval Missile Facility, Point Arguello, California, the Medical Department must be in constant readiness to provide first aid treatment and evacuation for mass casualties that might result from missile explosions and/or contamination by toxic missile fuels. Their crash ambulances have been modified to carry the necessary large amounts of medical supplies to fulfill this responsibility. Although much special toxic fuel detection and personnel protective equipment must also be carried in the ambulance at this particular facility, the general principles of the modifications could be conveniently and inexpensively applied to ambulances at any type of facility, and the contents carried in such ambulances modified as locally desired.

It was the original idea of a hospital corpsman (HM1 Claude E. DeMoss) to build some sort of container in the crash ambulances at NMF, Point Arguello

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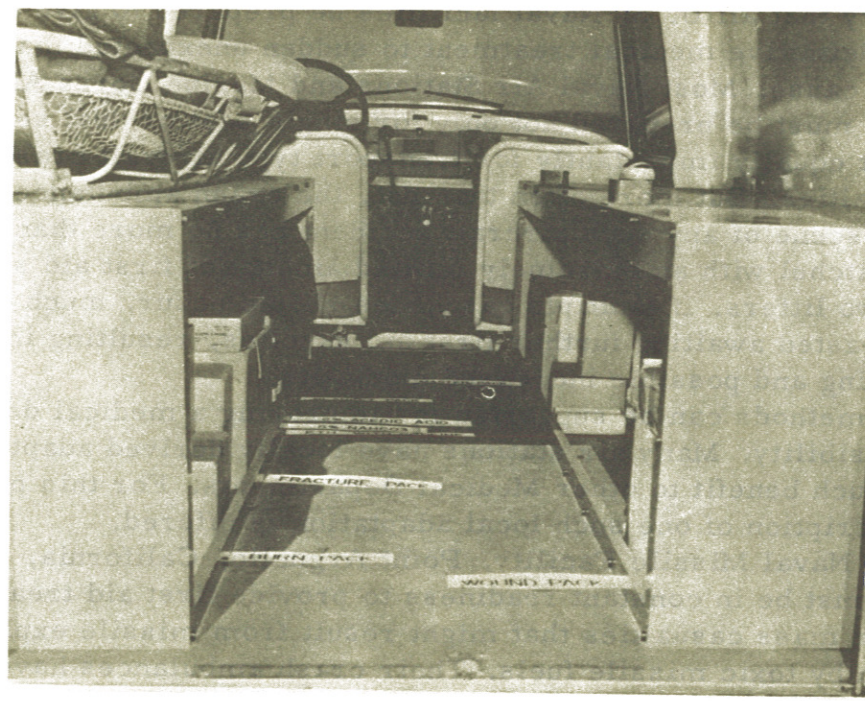
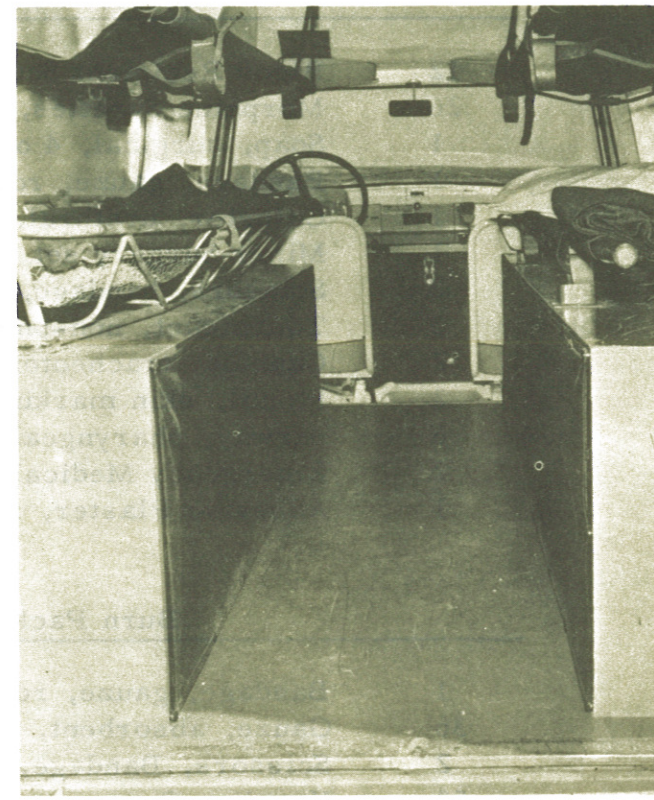
to hold the large amount of necessary medical supplies and equipment. Through his incentive and further development by other members of the Medical Department, the following modifications have been made in all their crash ambulances:

Wooden boxes have been fabricated in the carpenter shop and one has been installed on each side of the deck against the inside bulkhead of the ambulance; these boxes measure 23-7/8" in width, 20" in height, and 93-7/8" in length. No interior modifications to the ambulances are necessary prior to the installation of the boxes, and the installation is done in such a manner that they can be removed easily, if desired, without residual damage to the ambulance. The side of the box facing the center of the ambulance is left open and provided with wooden lips at top and bottom to prevent contents from sliding out of the box. Canvas covers have been made by the parachute loft and



attached to the open side of the boxes by snaps thus enabling quick removal when desired. After installation of the boxes on each side of the ambulance, a sufficiently wide passageway exists between them for personnel to work or to place a Stokes litter or canvas stretcher if desired. Metal U shaped flanges have been fabricated in the metal shop and installed on top of each box in the proper position to hold a Stokes litter or a canvas stretcher and thus prevent its sliding. Standard leather straps attached to overhead rings hold two other canvas litters above those on top of the boxes. Thus each ambulance, besides having a large enclosed space to hold supplies and equipment, still carries 4 litters and several ambulatory patients or even 5 litter cases if desired.



The contents of the boxes must of course be determined by the individual needs of each station. The peculiar operational requirements at NMF, Point Arguello, dictate that the ambulances must carry not only relatively large amounts of general first aid supplies, but also extensive personnel protective equipment and toxic fuel detection equipment for use in areas contaminated with toxic fuels. Special supplies must be maintained for treatment of contaminated personnel.

A note concerning the general first aid supplies may be helpful. BuMed Instruction 6700.25A (Medical Materiel Program for Nuclear Casualties), although not designed for this purpose, was found to be an excellent guideline in determining the general types and amounts of first aid supplies. The contents listed for the phase I medical requirements (First Aid Supplies for 100 People) in this instruction were reviewed and modified according to the peculiar needs and desires of the facility and the recommended amounts of each item halved. The proper amounts of each item were then obtained and packed in boxes corresponding to the purpose of the item as listed in the Instruction, (i.e. Master Pack, Wound Pack, Fracture Pack and Burn Pack). It was found that these large amounts of general first aid supplies could be easily stored in the boxes in the ambulances with plenty of room left to store the other specific supplies and equipment required at this Missile Base.

Thus each crash ambulance at NMF, Point Arguello, carries enough supplies for the general first aid treatment of 50 casualties in the field as well as a large amount of other specific supplies and equipment needed to meet its peculiar requirements. The patient capacity of each ambulance has not been reduced in any way by this modification.

It is felt that this simple modification has enabled the Medical Department at NMF, Point Arguello, to meet its responsibilities in emergencies and disasters in a greatly improved manner. Other stations may also find this modification helpful. NMFPA Crash Ambulance contents are listed below:

Master Pack Contents

6	Dextran Injection, 6%, 600 cc
6	Normal Saline, Isotonic, 1000 cc
6	Dextrose 5% in Saline, 1000 cc

Master Pack Contents (contd.)

12	Blood Recipient Set
26	Morphine Syrettes, gr. 1/4
1	Soap, surgical, 4 oz cake
1	Bandage, gauze, roller, 4" x 10 yds, 12's
1	Catheter, urethral, rubber, 18 Fr
1	Minor Surgery set
2	Scissors, bandage, angular, Lister, 7-1/4"
3	Tourniquet, non-pneumatic, camouflaged
2	Cannula, tracheotomy, Jackson, Size 5
2	Pencil, skin marking
6	Airway, pharyngeal, plastic
2	Emergency Medical Tag, book
1	Adhesive Plaster, roll

Burn Pack Contents

1	Bandage, gauze, roller, 3" x 10 yds, 12's
36	Gauze, absorbent, 36" x 5 yds, folded to 4" width
2	Scissors, Bandage, angular, Lister, 7-1/4"
50	Vaseline Gauze, package, 3's
1	Towel, sterile, package of 4
1	Sheet, sterile, pack of 2
4	Pin, safety, curved, large, 12's
1	Gloves, surgeons, sterile, Size 7-1/2 or 8
1	Plaster, adhesive, assorted sizes, tube
12	Bandage, elastic, 6"
12	Bandage, elastic, 3" or 4"
5	Tetracaine Ointment, tube
2	Pad, gauze, surgical, 4" x 4", 200's
2	Tongue Blades, 24's

Fracture Pack Contents

2	Bandage, gauze, roller, 4" x 10 yds, 12's
2	Wadding, cotton, sheet 5" x 6 yds, 12's
18	Splint, wire ladder, 3-1/2" x 3'
2	Splint, wood
7	Bandage, Triangular
18	Bandage, elastic, 3" or 4"
30	Bandage, elastic, 6"
2	Scissors, bandage, angular, Lister, 7-1/4"
2	Pin, safety, curved, large, 12's

Fracture Pack Contents (contd.)

3	Battle Dressing, medium
10	Battle Dressing, small
1	Tongue Blades, 12's

Wound Pack Contents

2	Bandage, gauze, roller, 4" x 10 yds, 12's
30	Battle Dressing, small
50	Battle Dressing, medium
6	Pad, gauze, surgical 4" x 4", 200's
3	Scissors, bandage, angular, Lister, 7-1/4"
3	Pin, safety, curved, large, 12's
2	Tape, adhesive, assorted sizes, tube
24	Bandage, elastic, 3" or 4"
6	Bandage, elastic, 6"
4	Battle Dressing, large
1	Eye Patch, box
5	Tourniquet, non-pneumatic
1	Selvage Gauze, bottle, sterile
1	Merthiolate, 4 oz bottle

Miscellaneous Items

1	5% Sodium Bicarbonate Solution, 2 Gal.
1	2% Acetic Acid Solution, 2 Gal.
2	Flashlight, complete with batteries
1	Asbestos Gloves, pair
4	Acid Gloves, pair
1	Blanket Pack (4 each)
2	Body Bag
1	Splint, traction, wood
1	Stretcher, Stokes
3	Litter, canvas
1	Resuscitator, "Minute-Man," 4 head
2	Acid Suit, (Gra-lite)
1	"Scott" Air Pack
1	Bolt Cutter
1	Gloves, rubber, work
1	Extinguisher, fire, for electric fire
1	Rope, 100' length
5	Strap, litter

Dilbert Dunker

By Lt J. M. Barry, FLY, Naval Air Training Command, Pensacola, Fla., December 1962.

"That thing is an underwater obstacle course," commented a Naval Aviation Cadet after riding one of the world's most exciting training devices... The Dilbert Dunker.

Every fledgling naval aviator rides the "Dunker" at the U. S. Naval School, Pre-Flight, located aboard the Naval Air Station, Pensacola, Florida. After roaring down the rails at 25 miles per hour, hitting the water at a 36 degree nose down attitude and being turned upside down, the student's problem is to extricate himself from the cockpit and swim away.

Capt John H. Caldwell, Commanding Officer of Pre-Flight, points out, "This training device was designed to teach students how to think under water. Due to the nature of flying done by naval aviators all over the world, it is imperative that they be as familiar as possible with every aspect of water and land survival techniques."

The Dilbert Dunker was first conceived in 1943 as a result of the Navy's concern for the high percentage of pilot fatalities which resulted from aircraft crashing at sea. Investigation proved that most of these pilots were not killed as a direct result of the crash, but because they became disorientated.

The Dilbert Dunker, which simulates a sea crash, was built and put into operation at the Pensacola Naval Air Station to acquaint pilots with underwater escape procedures.

There are 5 basic steps involved in the escape from a sinking aircraft. They are:

1. "Do nothing Step"--The object here is to have the student evaluate his situation, open his eyes, make sure the turbulence has stopped and the bubbles cleared.
2. Unfasten the safety belt.
3. Grab the canopy rail and pull as hard as you can with head back--clearing the cockpit.
4. Once clear--swim down. This allows the pilot to avoid a sinking aircraft. Then level off and turn to the left 45 degrees and swim away. This turn puts the pilot between the wing and tail of the aircraft.
5. Swim to the surface in a gradual ascent.

Since becoming an established part of the water survival course at Pre-flight, the Dilbert Dunker has been dropped over 60,000 times. Obviously it would be impossible for the Navy to estimate how many lives have been saved as a result of this training. However, the fatality rate for water crashes is now extremely low, and it is assumed that Dilbert Dunker has been the main reason for the improvement.

Due to the work and planning of the instructors at Pre-Flight, a new, more realistic Dilbert Dunker has been installed.

Lt G. A. Crepeau, Officer-in-Charge of the water survival unit, puts

it this way, "The old Dilbert Dunker was more like a crash than a ditching. With the new Dunker we get more realism, as the cockpit hits the water in a flatter attitude and flips over more violently."

All the survival instructors pooled their ideas and passed them along to Jim Kripps, of the Naval Training Device Center, who designed the new Dunker. Pensacola's overhaul and repair facilities built it.

The efficiency of the new Dunker is outstanding. In the first class using the device, 43 students were dropped in 45 minutes.

Four watchful instructors are needed at every drop. The senior instructor acts as a supervisor and over-all coordinator. He is responsible for the student receiving a "Thumbs Up" on his check ride. There is one man stationed in the water who assists students who become disorientated. He also observes that proper procedures are followed. In addition, an instructor prepares the student by strapping him in and giving any final instructions. Another safety man operates the winch which releases, retracts and emergency stops the dunker.

It was mentioned that it would be impossible to put an exact figure on the value of the survival training received at Pre-Flight, however, the National Aeronautics and Space Administration believed it important enough to send all the U. S. astronauts to Pensacola for water survival training. They participated in all phases of water survival including the Dilbert Dunker principles of under water escape using a mock-up of a Mercury Capsule.

There are many cases where Dilbert Dunker training has been credited with saving pilots' lives. One case involved a pilot making field carrier landing practice runs at Bronson Field, along-side Perdido Bay, in Pensacola. The pilot inadvertently stalled the aircraft and crashed upside down in nine feet of water. The aircraft settled to the muddy bottom. Due to the experience received in the Dunker he was able to extricate himself from the cockpit by digging down in the mud. He emerged with cuts on his hands and arms from clawing through oyster shells, but he is flying today.

Another case, not involving an aircraft, occurred in Louisiana. Two student pilots were returning from New Orleans at night when the driver fell asleep. The car crashed over a levee, hit a boat (the boat sank), and then rolled to river bottom. Both students sat there calmly, waited for things to settle down, opened the door, and swam to the surface. These student aviators were thankful for the Dilbert Dunker for it taught them to think and then react in a dangerous under water situation.

Naval Aviators are well trained to carry out all assigned missions. Because they fly over all types of terrain and sea to fulfill assigned missions, it is vital that they become familiar with all types of survival techniques. The Dilbert Dunker is just another insurance policy for the men who wear "Wings of Gold."

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RESERVE SECTION

Uniform Allowances
(continued)

(b) Substantiation of Eligibility by Officer. —The Table of Naval Reserve Officers' Uniform Allowance Claim Procedures in paragraph (5) indicates to whom and how the officer concerned shall submit his claim. The necessary substantiating documents, as shown in the Table for additional active duty uniform allowances, shall be submitted as indicated.

The following certification in duplicate shall be submitted:

Officer's Certification

I do hereby certify that:

a. I entered on a tour of active duty or active duty for training in excess of 90 days on or after 25 June 1950;

b. I have not, under any provision of law, received or become entitled to receive an initial uniform reimbursement or allowance in excess of $200 during the tour of active duty or active duty for training for which entitlement is claimed;

c. I did not report for active duty or active duty for training for which entitlement is claimed within a period of two years after completing a previous period of active duty or active duty for training of more than 90 days duration as a Reserve Officer of Navy or Coast Guard.

d. I have not served as a Regular Officer of the Armed Forces, or, that having so served, more than two years have passed since my separation from a Regular Component of the Armed Forces;

e. The tour of active duty or active duty for training for which entitlement is claimed required the wearing of the uniform;

f. Prior to this date I have neither received nor claimed the $100 additional active duty uniform allowance authorized under the Armed Forces Reserve Act of 1952 for the tour of active duty or active duty for training for which this entitlement is claimed.

_____
(Signature of Officer - sign all copies)

(4) Uniform Maintenance Allowance. Reimbursement in the amount of $50 is payable to all officers of the Naval Reserve upon the completion of each period, after 9 July 1952, of not less than 4 years of satisfactory service as prescribed in Title 10, U. S. C., Sec. 1332, excluding all periods of

active duty or active duty for training in excess of 90 consecutive days. Entitlement to this maintenance allowance is determined as follows:

(a) Eligibility. --Officers of the Naval Reserve who meet the qualifying requirements set forth in subparagraph (b) below are entitled to the amount of $50 upon the following occasions:

1. Upon the first completion of a period of 4 years of satisfactory service after 9 July 1952, after appointment as an officer in an active status of the Naval Reserve, provided at least 4 years have elapsed since the date of last entitlement to any of the uniform allowances cited in this article, or under any provision of law.

2. Upon the second and each succeeding completion of a period of 4 years of satisfactory service after 9 July 1952, as an officer in an active status of the Naval Reserve, provided at least 4 years have elapsed since the date of last entitlement to any of the uniform allowances cited in this article.

(b) Qualifying Requirements. --Creditable service for the purpose of computing each 4-year period of satisfactory service shall be determined as follows:

1. Service - The required 4-year period of satisfactory service must be completed after 9 July 1952. It is not necessary, however, that the 4-year period be commenced after that date, nor that the 4 years of satisfactory service be consecutive.

2. Wearing of the Uniform - An officer must earn, during each anniversary year, a minimum of 35 retirement points for the performance of duties requiring the wearing of the uniform. These points, therefore, must be in addition to the 15 retirement points granted for membership in a Reserve Component, or those earned by correspondence courses or other duty not requiring the wearing of the uniform. As the Reserve Officer Recording Activity must determine that all qualifying duty claimed actually required the wearing of the uniform, claimants should pay particular attention that all qualifying drills and periods of active duty for training are listed on the claim form.

3. Periods Excluded - In determining the required years of satisfactory service, all periods of active duty or active duty for training in excess of 90 consecutive days shall be excluded.

4. Pro Rata Credit - A part of an anniversary year needed to complete 4 years of satisfactory service may be counted as satisfactory service only if the entire anniversary year is satisfactory. For example, an officer with an anniversary date of 30 June on which he is credited with 3 years 8 months of satisfactory service needs 4 additional months of satisfactory service. Not until the officer earns 50 points during the anniversary year ending the following 30 June can it be determined that the required 4 months period, completed on 31 October, is creditable as satisfactory service.

(to be continued)

Bureau of Naval Personnel Manual—Part H
Section 9. Uniform Allowances

ONI Needs Translators

Reservists with a good knowledge of Russian, French and German can help the Director of Naval Intelligence by translating scientific and technical journals.

Article H-4207, BuPers Manual, which covers this program, is being revised. Translation of French and German is no longer limited to officers with 1635 designator.

You may apply if you are qualified to translate Russian, French, or German scientific and technical journals. Write to the Director of Naval Intelligence (Translations Section), via your commandant, and include a summary of your linguistic education and experience.

Applicants will be sent a test translation. If you complete the translation satisfactorily, you will be credited with two retirement points for the test, and accepted into the program. Additional retirement points will be given for taking part.

The Naval Reservist - NAVPERS 15653
April 1963

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